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EXAMINER	
YUEN, KAN	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/686,658	Applicant(s) DUNAGAN ET AL.	
	Examiner KAN YUEN	Art Unit 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40,42 and 44-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *40,42 and 44-47* is/are allowed.

6)☒ Claim(s) *1-17,19-33 and 35-39* is/are rejected.

7)☒ Claim(s) *18 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/12/2008 has been entered.

Claim Rejections - 35 USC § 103

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3, 7-13, 23, 25-30, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya et al. (Pub No.: 2003/0185148), in view of Saleh et al. (Pat No.: 6801496).

For claim 1, Shinomiya et al. disclosed the method of each node in the failure notification group ascertaining whether a failure has occurred (Shinomiya et al. see paragraphs 0041, fig. 1). Each communication nodes 1-5 allocates spare communication resources, detects (ascertains) a fault, transfers a fault notification message (through the flooding method), and processes the fault notification message;

each node in the failure notification group that has ascertained a failure signaling a failure notification to each reachable node in the failure notification group, wherein each node in the failure notification group ascertains a failure or is notified of a failure (Shinomiya et al. see paragraphs 0014, 0041, fig. 1). When a fault is detected, a fault notification message including fault location information is transferred from a fault detection node to each node in the event of a link or a node fault (see paragraph 0014); and

each node in the failure notification group executing the failure handling method to perform an application level action in response to ascertaining a failure or being notified of a failure (Shinomiya et al. see paragraphs 0014). A spare path design method for a communication network in which spare path information is set in advance in each node of the communication network. When a fault is detected, a fault notification message is transferred from a fault detection node to each node in the event of a link or a node fault, and the nodes receiving the fault notification message switch the path in parallel. The spare path design method is broadly interpreted as the failure handling method to switching the path in parallel.

However, Shinomiya et al. did not disclose the method of creating a failure notification group comprising the plurality of nodes, wherein the failure notification group has a unique identifier; associating with the unique identifier of the failure notification group a failure handling method of a distributed application running on some or all of the nodes of the failure notification group. Saleh et al. from the same or similar fields of endeavor disclosed the method of creating a failure notification group comprising the plurality of nodes, wherein the failure notification group has a unique identifier (see Saleh et al. see column 2, lines 13-20, and see column 5, lines 39-47, and see fig. 2). As shown, the nodes are created into zones or groups, and each zone has a zone ID or unique identifier;

associating with the unique identifier of the failure notification group a failure handling method of a distributed application running on some or all of the nodes of the failure notification group (see column 4, lines 16-35). Each zone boundary node can be used to limit the flow of topological information, which can be interpreted as failure handling method.

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Saleh et al. into the network of Shinomiya et al. The motivation for using the method being that it provides full restoration between two large networks.

Regarding claim 3, Saleh et al. disclosed the feature of wherein creating a failure notification group includes: verifying that each node in the failure notification group exists and generating the unique identifier for the failure notification group if each

node in the failure notification group is successfully contacted (Saleh et al. see column 4, lines 40-55). Each group of nodes has a boundary node that maintains two databases, one is for storing link-state of connection to other zone, and other is for store link-state of connection among nodes within the zone.

Regarding claim 7, Shinomiya et al. disclosed the feature wherein signaling a failure notification includes sending a failure notification message to nodes in the failure notification group (Shinomiya et al. see paragraph 0053, lines 1-5).

Regarding claim 8, Shinomiya et al. disclosed the feature wherein signaling a failure notification includes failing to respond to a communication request from a node in the failure notification group (Shinomiya et al. see paragraph 0046, lines 1-6). As shown in the reference, faulty notification message is created when the network detects a faulty node. A faulty node can be either malfunctioning or not responsive.

Regarding claim 9, Shinomiya et al. disclosed the feature wherein signaling a failure notification includes failing to respond only to communication requests related to a failure notification group for which a failure has been ascertained (Shinomiya et al. see paragraph 0039, lines 1-5 and see paragraph 0046, lines 1-6, and fig. 1). As shown in the reference, once the fault notification is generated, it passes to all nodes in the group.

Regarding claim 10, Shinomiya et al. disclosed the feature wherein ascertaining whether a failure has occurred includes ascertaining a failure in a communication link to at least one other node in the failure notification group (Shinomiya et al. see paragraph 0039, lines 1-5 and see paragraph 0046, lines 1-6, and fig. 1).

Regarding claim 11, Shinomiya et al. disclosed the feature wherein ascertaining whether a failure has occurred includes receiving from the application an instruction to signal the failure notification (Shinomiya et al. see paragraph 0046, lines 1-6). As shown in the reference, faulty notification message is created when the network detects a faulty node. A faulty node can be either malfunctioning or not responsive. The instruction is to pass the notification message to neighbor nodes.

Regarding claim 12, Shinomiya et al. disclosed the feature wherein ascertaining whether a failure has occurred includes having failed to repair the failure notification group one or more times (Shinomiya et al. see paragraph 0054, lines 1-5). In the reference, the method is used to repair the failed node by switching to a difference path.

Regarding to claim 13, Shinomiya et al. disclosed the feature wherein ascertaining whether a failure has occurred includes distinguishing between a communication failure between two nodes that are both in the failure notification group (see paragraph 0046, lines 1-6). As shown in the reference, faulty notification message is created when the network detects a faulty node. The faulty node in the group causes disconnection between nodes. However, Shinomiya et al. did not disclose the method of a communication failure between two nodes that are not both in the failure notification group. Saleh et al. also teach the method of a communication failure between two nodes that are not both in the failure notification group (see column 4, lines 40-55, and see fig. 2). Each group of nodes has a boundary node that maintains two databases; one of the databases is for storing link-state of connection between other zones, and to detect link state between its own zone and other zone. Thus, it would have been

obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Saleh et al. into the network of Shinomiya et al. The motivation for using the method as taught by Saleh et al. in the network of Shinomiya et al. being that it full restoration may be used between two zones.

Regarding claim 23, Shinomiya et al. disclosed the feature each node in the failure notification group ascertaining whether a failure has occurred (Shinomiya et al. see paragraphs 0041, fig. 1). Each communication nodes 1-5 allocates spare communication resources, detects (ascertains) a fault, transfers a fault notification message (through the flooding method), and processes the fault notification message;

each node in the failure notification group that has ascertained a failure signaling a failure notification to each reachable node in the failure notification group, wherein each node in the failure notification group ascertains a failure or is notified of a failure (Shinomiya et al. see paragraphs 0014, 0041, fig. 1). When a fault is detected, a fault notification message including fault location information is transferred from a fault detection node to each node in the event of a link or a node fault (see paragraph 0014); and

each node in the failure notification group executing the failure handling method to perform an application level action in response to ascertaining a failure or being notified of a failure (Shinomiya et al. see paragraphs 0014). A spare path design method for a communication network in which spare path information is set in advance in each node of the communication network. When a fault is detected, a fault notification message is transferred from a fault detection node to each node in the event of a link or

a node fault, and the nodes receiving the fault notification message switch the path in parallel. The spare path design method is broadly interpreted as the failure handling method to switching the path in parallel.

However, Shinomiya et al. did not disclose the method of receiving a unique identifier for a failure notification group, the failure notification group comprising the plurality of nodes; associating with the unique identifier of the failure notification group a failure handling method of a distributed application running on some or all of the nodes of the failure notification group.

Saleh et al. also teach the method of receiving a unique identifier for a failure notification group, the failure notification group comprising the plurality of nodes (see column 2, lines 13-20, and see column 5, lines 39-47, and see fig. 2). As shown, the nodes are created into zones or groups, and each zone has a zone ID or unique identifier;

associating with the unique identifier of the failure notification group a failure handling method of a distributed application running on some or all of the nodes of the failure notification group (see column 4, lines 16-35). Each zone boundary node can be used to limit the flow of topological information. Each zone can be configured to run a separate copy of the topology distribution process, and nodes within each zone are only required to maintain information about their own zone, therefore each node in the zone is running the same application to maintain their zone information. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Saleh et al. into the network of Shinomiya et al. The motivation

for using the method as taught by Saleh et al. in the network of Shinomiya et al. being that it full restoration may be used between two zones.

Regarding to claim 25, Shinomiya et al. also disclosed the method of signaling a failure notification includes sending a failure notification message to nodes in the failure notification group (see paragraph 0014, lines 1-25). In the reference, once the faulty node is detected by a node, the node will send a fault notification message to other node in a group.

Regarding to claim 26, Shinomiya et al. also disclosed the method of signaling a failure notification includes failing to respond to a communication request from a node in the failure notification group (see paragraph 0046, lines 1-6). As shown in the reference, faulty notification message is created when the network detects a faulty node. A faulty node can be either malfunctioning or not responsive.

Regarding to claim 27, Shinomiya et al. also disclosed the method of signaling a failure notification includes failing to respond to only communication requests related to a failure notification group for which a failure has been ascertained (see paragraph 0039, lines 1-5 and see paragraph 0046, lines 1-6, and fig. 1). As shown in the reference, once the fault notification is generated, it passes to all nodes in the group.

Regarding to claim 28, Shinomiya et al. also disclosed the method of ascertaining a failure includes ascertaining a failure in a communication link to at least one other node in the failure notification group (see paragraph 0039, lines 1-5 and see paragraph 0046, lines 1-6, and fig. 1).

Regarding to claim 29, Shinomiya et al. also disclosed the method of ascertaining a failure includes receiving from the application an instruction to signal the failure notification (see paragraph 0046, lines 1-6). As shown in the reference, faulty notification message is created when the network detects a faulty node. A faulty node can be either malfunctioning or not responsive. The instruction is to pass the notification message to neighbor nodes.

Regarding to claim 30, Shinomiya et al. also disclosed the method of ascertaining a failure includes having failed to repair the failure notification group one or more times (see paragraph 0054, lines 1-5).

Regarding to claim 35, Shinomiya et al. also disclosed the method of ascertaining a failure includes distinguishing between a communication failure between two nodes that are both in the failure notification group (see paragraph 0046, lines 1-6). As shown in the reference, faulty notification message is created when the network detects a faulty node. The faulty node in the group causes disconnection between nodes. However, Shinomiya et al. did not teach the method of a communication failure between two nodes that are not both in the failure notification group. Saleh et al. also teach the method of a communication failure between two nodes that are not both in the failure notification group (see column 4, lines 40-55, and see fig. 2). Each group of nodes has a boundary node that maintains two databases; one of the databases is for storing link-state of connection between other zones, and to detect link state between its own zone and other zone. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Saleh et al.

into the network of Shinomiya et al. The motivation for using the method as taught by Saleh et al. in the network of Shinomiya et al. being that it full restoration may be used between two zones.

5. Claims 2 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya et al. (Pub No.: 2003/0185148), in view of Saleh et al. (Pat No.: 6801496), as applied to claim 1 above, and further in view of Fortuna (Pat No.: 6778833).

For claims 2 and 24, Shinomiya et al. and Saleh et al. both disclosed all the subject matter of the claimed invention with the exception of disassociating the failure handling method from the unique identifier after the failure is ascertained and the failure handling method has been executed. Fortuna from the same or similar field of endeavor teaches the method of disassociating the failure handling method from the unique identifier after the failure is ascertained and the failure handling method has been executed (see column 10, lines 35-40). As shown in the reference, the identifier is being removed or disassociated from method 60. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Fortuna in the network of Shinomiya et al. and Saleh et al. The motivation for using the method as taught by Fortuna in the network of Shinomiya et al. and Saleh et al. being that it eliminate identifiers and to reserve more bandwidth.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya et al. (Pub No.: 2003/0185148), in view of Saleh et al. (Pat No.: 6801496), as applied to claim 3 above, and further in view of Lotter et al. (Pat No.: 7218645).

For claim 4, Shinomiya et al. and Saleh et al. both disclosed all the subject matter of the claimed invention with the exception of creating a failure notification group includes executing the failure handling method if each node in the failure notification group is not successfully contacted. Lotter et al. from the same or similar fields of endeavor disclosed the feature of creating a failure notification group includes executing the failure handling method if each node in the failure notification group is not successfully contacted (see column 11, lines 22-30). In the reference, the radio link optimizer 200 will perform the optimization method even not all information are available, which is same or similar idea as if each node in the group is not successfully contacted, the method will still performed based on the available information. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the feature as taught by Lotter et al. in the network of Shinomiya et al. and Saleh et al. The motivation for using the feature as taught by Lotter et al. in the network of Shinomiya et al. and Saleh et al. being that improves the QoS by shorten the latency of contacting nodes.

7. Claims 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya et al. (Pub No.: 2003/0185148), in view of Saleh et al. (Pat No.: 6801496), as applied to claim 1 above, and further in view of Rabie et al. (Pat No.: 7092356).

For claim 5, Shinomiya et al. and Saleh et al. both disclosed all the subject matter of the claimed invention with the exception of sending an invitation message containing an application state and the unique identifier to each node of the failure notification group; and verifying that each member of the failure notification group received the invitation message. Rabie et al. from the same or similar fields of endeavor disclosed the feature of sending an invitation message containing an application state and the unique identifier to each node of the failure notification group (see column 2, lines 25-65, and see fig 1.). As shown, each node in a network is able to send information to every other node regarding the state of all of its links; As shown in the reference, the sending state information can be the link status, and QoS, and reach-ability information (unique identifier) of the node; and verifying that each member of the failure notification group received the invitation message (see column 2, lines 25-65, and see fig 1.). As revealed in the reference, each node received the state information will be maintained in its own database. The state information also includes two parameters: a) Non-additive link, and Additive link, and two kinds of CAC, the actual CAC utilizes an accurate algorithm which verifies the QoS in each nodes, which also verifies the receipt of state information in each node inherently. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the feature as taught by Rabie et al. in the network of Shinomiya et al. and Saleh et al.

The motivation for using the feature as taught by Rabie et al. in the network of Shinomiya et al. and Saleh et al. being that the state information contains plurality of information, and it provides convenience to all nodes to retrieve information.

Regarding claim 6, Shinomiya et al. disclosed if any node in the group of nodes fails to receive the invitation, signaling a failure notification to nodes that already received the invitation message; and executing the failure handling method (paragraph 0014). The spare path design method will be executed when a fault is detected. The fault is detected when a link or a node becomes faulty. Although the reference of Shinomiya et al. did not explicitly disclosed signaling a notice to nodes that already received the invitation message, however when the nodes and links are currently working properly they are able to receive messages. Thus, an official notice is taken that it is obvious to an ordinary skill in the art at the time of the invention to show that functional links and nodes would be able to receive invitation messages. The motivation for using the obviousness being that it reduces of restoration delay.

8. Claims 14 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya et al. (Pub No.: 2003/0185148), in view of Saleh et al. (Pat No.: 6801496), as applied to claim 1 above, and further in view of Havansi (Pat No.: 5905714).

For claims 14 and 31, Shinomiya et al. and Saleh et al. both disclosed all the subject matter of the claimed invention with the exception of the failure is ascertained

from an application pinging each node in the failure notification group, and determining the failure when a response to a ping is not received. Havansi from the same or similar fields of endeavor teaches the method of the failure is ascertained from an application pinging each node in the failure notification group, and determining the failure when a response to a ping is not received (see column 3, lines 36-50). In the reference, the ping-pong type of message exchange, which has the advantage that it will allow the condition of the whole connection to be tested. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Havansi in the network of Shinomiya et al. and Saleh et al. The motivation for using the method as taught by Havansi in the network of Shinomiya et al. and Saleh et al. being that pinging nodes to measure the aliveness in the nodes.

9. Claims 15 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya et al. (Pub No.: 2003/0185148), in view of Saleh et al. (Pat No.: 6801496), as applied to claim 1 above, and further in view of Greaves et al. (Pat No.: 6396815).

For claims 15 and 32, Shinomiya et al. and Saleh et al. both disclosed all the subject matter of the claimed invention with the exception of the nodes in the failure notification group have a spanning tree topography, wherein the failure is ascertained from an application pinging adjacent nodes in the spanning tree, and determining the failure when a response to a ping is not received. Greaves et al. from the same or

similar fields of endeavor teaches the method of the nodes in the failure notification group have a spanning tree topography, wherein the failure is ascertained from an application pinging adjacent nodes in the spanning tree, and determining the failure when a response to a ping is not received (see column 18, lines 1-20, and see fig. 3). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Greaves et al. in the network of Shinomiya et al. and Saleh et al. The motivation for using the method as taught by Greaves et al. in the network of Shinomiya et al. and Saleh et al. being that it provides point to multipoint transmission.

10. Claims 16 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya et al. (Pub No.: 2003/0185148), in view of Saleh et al. (Pat No.: 6801496), as applied to claim 1 above, and further in view of Liu et al. (Pub No.: 2005/0068954).

For claims 16 and 33, Shinomiya et al. and Saleh et al. both disclosed all the subject matter of the claimed invention with the exception of the nodes in the failure notification group are a subset of nodes in an overlay network, wherein creating a failure notification group includes creating a multicast tree by sending a construction message to each node in the failure notification group. Liu et al. from the same or similar fields of endeavor teaches the method of the nodes in the failure notification group are a subset of nodes in an overlay network, wherein creating a failure notification group includes

creating a multicast tree by sending a construction message to each node in the failure notification group (see paragraph 0007, lines 1-10, and see paragraph 0042, lines 1-10, and see fig. 2). As revealed in the reference, the invention establishes transmission header (construction message) based the knowledge of the addresses of receiver nodes at a sender node, and distributes the transmission header to the nodes. As shown in fig. 2, there are two sub-tree groups in a network. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Liu et al. in the network of Shinomiya et al. and Saleh et al. The motivation for using the method as taught by Liu et al. in the network of Shinomiya et al. and Saleh et al. being that it provides point to multipoint transmission.

11. Claims 17, 19-22, and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya et al. (Pub No.: 2003/0185148), in view of Saleh et al. (Pat No.: 6801496), and Liu et al. (Pub No.: 2005/0068954), as applied to claim 16 above, and further in view of Izmailov et al. (Pub No.: 2005/0015511).

For claim 17, Shinomiya et al. disclosed the method of nodes in the overlay routing path record pointers to adjacent nodes in the overlay routing path (see paragraph 0014, lines 1-25). As revealed in the reference, the new spare path information is updated in the database, which in this case, the spare path information is the alternative path to other node, and it can be interpreted as a pointer, and the spare path is recorded into database. However, Shinomiya et al. Saleh et al. and Liu et al. did

not disclosed the method of the construction message is routed to each node in the failure notification group through an overlay routing path. Izmailov et al. from the same or similar fields of endeavor teaches the method of the construction message is routed to each node in the failure notification group through an overlay routing path (see paragraph 0043, lines 1-10, and see paragraph 0080, lines 1-10). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Izmailov et al. in the network of Shinomiya et al. and Saleh et al. and Liu et al. The motivation for using the method as taught by Izmailov et al. in the network of Shinomiya et al. and Saleh et al. and Liu et al. being that it provides point to multipoint transmission, and each node in the network can be monitored or inferred.

Regarding to claim 19, Izmailov et al. also disclosed the method of ascertaining the failure includes ascertaining that a communication link to a node in the overlay network has failed, and determining whether the node was a member of the multicast tree (see paragraph 0075, lines 1-12). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Izmailov et al. in the network of Shinomiya et al. and Saleh et al. and Liu et al. The motivation for using the method as taught by Izmailov et al. in the network of Shinomiya et al. and Saleh et al. and Liu et al. being that it provides point to multipoint transmission, and each node in the network can be monitored or inferred.

Regarding to claim 20, Shinomiya et al. also disclosed the method of if the node was a member of the multicast tree, signaling a failure notification to adjacent nodes in

the multicast tree (see paragraph 0014, lines 1-25). In the reference, once a faulty node is detected by a node, the node will send a fault notification message to its neighbor.

Regarding to claim 21, Shinomiya et al. also disclosed the method of if the node was a member of the multicast tree, signaling a failure notification to adjacent nodes in the multicast tree by not responding to messages from the adjacent nodes (see paragraph 0014, lines 1-25). In the reference, once a faulty node is detected by a node, the node will send a fault notification message to its neighbor.

Regarding to claim 22, Shinomiya et al. also disclosed the method of if the node was a member of the multicast tree, executing the failure handling method (see paragraph 0014, lines 1-25). In the reference, once a faulty node is detected by a node, the node will send a fault notification message to its neighbor. The spare path design method is used, which can be interpreted as failure handling method.

Regarding to claim 36, Izmailov et al. also disclosed the method of ascertaining the failure includes ascertaining that a communication link to a node in the overlay network has failed, and determining whether the node was a member of the multicast tree (see paragraph 0075, lines 1-12). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Izmailov et al. in the network of Shinomiya et al. and Saleh et al. The motivation for using the method as taught by Izmailov et al. in the network of Shinomiya et al. and Saleh et al. being that it provides point to multipoint transmission, and each node in the network can be monitored or inferred.

Regarding to claim 37, Shinomiya et al. also disclosed the method of if the node was a member of the multicast tree, signaling a failure notification to adjacent nodes in the multicast tree (see paragraph 0014, lines 1-25). In the reference, once a faulty node is detected by a node, the node will send a fault notification message to its neighbor.

Regarding to claim 38, Shinomiya et al. also disclosed the method of if the node was a member of the multicast tree, signaling a failure notification to adjacent nodes in the multicast tree by not responding to messages from the adjacent nodes (see paragraph 0014, lines 1-25). In the reference, once a faulty node is detected by a node, the node will send a fault notification message to its neighbor.

Regarding to claim 39, Shinomiya et al. also disclosed the method of if the node was a member of the multicast tree, executing the failure handling method (see paragraph 0014, lines 1-25). In the reference, once a faulty node is detected by a node, the node will send a fault notification message to its neighbor. The spare path design method is used, which can be interpreted as failure handling method.

Allowable Subject Matter

12. **Claims 18 and 34** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art also failed to teach the limitation of receiving a confirmation message, wherein the construction message is routed to each node in the failure

notification group through an overlay routing path, and upon receiving the confirmation message, each node in the overlay routing path records a pointer a preceding node, and wherein the confirmation message is routed through the overlay routing path in reverse, and upon receiving the confirmation message, each node in the reverse overlay routing path records a pointer to a preceding node as recited in claims 18, 34.

13. **Claims 40, 42, 44-47** are allowed. The prior art failed to teach the method of wherein joining the failure notification tree includes: receiving a first message from a creator node of a failure notification group through an overlay routing path; recording a pointer to an overlay node from which the first message was received; forwarding the first message to a node in the failure notification group via a next node in the overlay routing path; receiving a second message from the node in the failure notification group through the overlay routing path; recording a pointer to an overlay node from which the second message was received; and forwarding the second message to the creator node via the overlay node from which the first message was received, as recited in claim 40.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAN YUEN whose telephone number is (571)270-1413. The examiner can normally be reached on Monday-Friday 10:00a.m-3:00p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2416

/Kan Yuen/
Examiner, Art Unit 2416

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